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Epistemology

Believing without Reason, or: Why Liberals Shouldn't Watch Fox News

By Eric Mandelbaum and Jake Quilty-Dunn

I. Believing badly

When asked whether the earth revolved around the sun or vice versa, 1 in 4 American adults responded that the earth remains still. Less than half of all Americans believe that humans evolved from earlier animal species. That means more Americans believe that antibiotics are effective against viruses (50% think this) than believe humans are a product of evolution.[1]

Although specific numbers vary based on the poll one uses, a bit less than half of Americans believe in ghosts.[2] Ghosts are apparently a more popular posit than witches, which only 26% of American adults believe in.[3] Americans are not outliers. British respondents have a similar affinity for the parapsychological: 43% thought they had read others' minds (or had their minds read) while 62% believed in some form of ESP, and 10% in telekinesis. 9% thought they were full-on psychic.[4]

As of 2013, 24% of American adults believe not only in reincarnation, but that they themselves were once another person. 74% of American adults believe in God, 72% believe in miracles, 68% believe in heaven (while only 58% believe in hell), 57% believe in the Virgin birth.[5] Thus more Americans believe that Jesus was born of a virgin than that humans are part of the phylogenetic tree. As of

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May 2014, 22–28% of Americans believe that the Bible is the actual word of God, and is to be taken *literally* word for word.[6]

More straightforward facts are also not straightforwardly believed. In 2012, 63% of Republican respondents still believed that Iraq had weapons of mass destruction when the US invaded. 64% of Republicans also still believed that Barack Obama was not born in America.[7] 17% of Americans thought he was (and presumably still think he is) a Muslim.[8] That's only slightly more than the 13% of Americans who asserted that he is in fact the antichrist, about the same percentage of Americans (11%) who either assert or do not deny that "shape-shifting reptilian people control our world by taking on human form and gaining political power to manipulate our societies."[9]

These figures were pulled more or less arbitrarily, and without any malice aforethought for the groups being questioned. We have little reason to suppose that there would be vast differences if we chose different cultures. And we have no doubt that although the percentages would differ given different wording, the underlying phenomenon that we are interested in would stay the same: people believe very odd things.

As philosophers we are predisposed to attend to the rational, and hence epistemology is often concerned with offering formal models of belief acquisition and change. We teach basic principles of rational belief maintenance to our students, holding the image of Descartes by the fire, brooding over which ideas are Clear and Distinct, as the apotheosis of responsible belief acquisition. However, this preoccupation with the rational has blinded us to our actual practices of belief acquisition. People hold shockingly irrational beliefs, and if we want to accurately describe those practices, we will have to confront facts about how ordinary people ordinarily acquire extraordinary beliefs. In particular, we have to explain how people seem to accept patent absurdities, and how people will form beliefs in ways that are seemingly at odds with the independent evidence available to them.

In opposition to Descartes, we can use Spinoza as our starting point. Spinoza had a different model of belief acquisition. The ideal of the Cartesian believer is of a prudent reasoner, one who cautiously weighs evidence and suspends judgment until the evidence compels belief unto oneself. However, the Spinozan model of belief acquisition is importantly different. For the Spinozan, there is no point at which one can suspend judgment. All information that a Spinozan mind encounters is, in the first instance, initially believed, regardless of the evidence for—or for that matter against—the information's validity. Only after the initial acquisition can mental processes dedicated to rejecting information take hold.

In what follows, we will explore the Spinozan model and, in particular, its consequences for the epistemology of belief. The specifics of the Spinozan model have been described in great detail and argued for in other places (most prominently in Gilbert 1991 and Mandelbaum 2014a), so we will keep our defense of the model to a minimum. Instead, after explaining the model and giving some motivation for it, we will use it to describe how people can end up with a large stock of beliefs acquired and maintained without evidence, in a wholly arational fashion.

II. Automatic acceptance and effortful rejection

The key claim of the Spinozan model is that propositions cannot be entertained without being believed. When a proposition (e.g., *Jimmy Carter is an ancient Hindu goddess*) is understood, that proposition is immediately believed to be true, no matter what its contents are, or what else the hearer believes. One cannot simply consider the proposition without holding it to be true. Only after a proposition is initially accepted can it then be rejected. The Spinozan model analyzes believing a proposition as an automatic and effortless process, while it interprets rejecting a proposition as a controlled and effortful process. The acceptance process, in virtue of being automatic and effortless, proceeds regardless of what else is happening in one's cognitive economy, while the rejection process is more fragile and susceptible to breakdowns based on cognitive load.

We should note, of course, that the sense in which the relevant proposition is believed does not involve consciousness, self-attribution, robust endorsement, or willingness to openly avow it. If belief on the Spinozan model required these properties, it would be easily falsifiable by the fact that, when you read 'Jimmy Carter is an ancient Hindu goddess', you are, to put it mildly, unwilling to assent to that sentence or ascribe the belief to yourself. Given that the Spinozan theory is not so easily falsifiable, how could one try to falsify it?

The core difference between the Cartesian and Spinozan models is that, for Cartesian systems, acceptance or rejection is an effortful additional step in processing, whereas for Spinozan systems, acceptance is automatic and only rejection is effortful. One way to test which model applies to us would be to see whether, when you put subjects under cognitive load and present them with sentences, their behavior will exhibit a Cartesian neutrality with respect to the truth or falsity of the sentences or whether it will display implicit acceptance. As Gilbert put it, "resource depletion should prevent a Cartesian system from either accepting or rejecting the propositions that it merely comprehends, whereas it should prevent a Spinozan system from unaccepting or certifying the propositions that it both comprehends and accepts" [Gilbert (1991), 110].

In fact, when under load, subjects tend to display implicit acceptance, exactly in line with the Spinozan model. In Gilbert et al. 1993, for example, subjects viewed (fictional) crime reports concerning two separate crimes, which slowly advanced across a computer screen. The reports contained both "true" and "false" information, with the true sentences in black typeface and false sentences in red. The experimental group was told to keep an eye on a parallel scrolling text (a 'crawl') of numbers and look out for instances of the number '5', while the control group was told to ignore the numbers. The subjects were then tested in various ways to see which information they held to be true. For instance, they were asked to recommend prison terms and rate their feelings toward the perpetrators. For the experimental group, the prison terms recommended were significantly influenced by the nature of the false statements. These subjects "recommended that perpetrators serve nearly twice as much time when the false statements contained in the police reports exacerbated (rather than extenuated) the severity of the crimes" [Gilbert et al. (1993), 223]. The rating tests showed similar results. "In short," write Gilbert et al., being under cognitive load will "cause subjects to act as though false statements were true" [*Ibid*., 225].

The results here are of particular interest not only because they show implicit acceptance under load, thus telling against the Cartesian model, but also because they demonstrate the *inferential promiscuity* of the acceptance. One might think it is a core feature of beliefs not only that they involve accepting some proposition, but also that they function as premises in inferences. If I believe that Jimmy Carter is an ancient Hindu goddess, I will also be apt to infer that he is a goddess, that he has supernatural powers, that he has existed for a very long time, etc. The fact that the sentences marked false are not only passively accepted, but are also inferentially integrated into subjects' decisions (e.g., decisions about jail sentences), thus provides powerful motivation for the Spinozan model. Even when propositions are known to be false, they are passively accepted as soon as they're encoded, and they inferentially integrate with other beliefs. Thus, Gilbert et al.'s results (among many others—see Mandelbaum 2014a for a survey) seem to generate clear empirical counterexamples to the Cartesian model of belief formation.

It is worth asking why we would evolve to have Spinozan minds. That is, why would cognitive systems be constructed to simply accept any incoming information rather than cautiously withhold judgment until proper evaluation can take place? Presumably the right attitude to take to a great many propositions we encounter is to suspend judgment. For what seems like the vast majority of questions both quotidian ('How heavy is an ox?'; 'At what point does vodka freeze?') and weighty ('Should the West lift the economic sanctions on Iran in exchange for their ceasing to enrich Uranium?'; 'Will I have a bigger amount of savings if I take the job in New York or Atlanta?') the answers are just not very clear. When the evidence doesn't suggest any affirmative answer to the question of 'whether p', the epistemically respectable thing to do is to suspend judgment (see Friedman 2013 for discussion). So why would we evolve a cognitive system that ran afoul of such reasonable norms?

We suggest that the answer lies in the fact that our cognitive systems evolved out of our perceptual systems. Our perceptual modalities, by and large, lead to veridical representations of the world. The cognitive capacities that first evolved simply took what was given to them from perception and operated on it without further analysis. The adaptive function of cognitive systems, whenever they first emerged, likely involved enabling organisms to retain information gained through perception beyond the cessation of the stimulus. Since the perceptual systems delivered veridical representations to the cognitive system, cognition had no need to be able to reject information. All the better to conserve energy for further processing of that information for action rather than consider the veridicality of a representation that was almost always veridical.

If cognitive faculties evolved as receptacles for the outputs of perceptual faculties, and if perceptual faculties by and large deliver accurate representations, then it would make sense for the default propositional attitude to be one of passive acceptance. It is only much later in the development of cognitive processes that the ability to reject information even gains any fitness-enhancing value. It is with the rise of culture, communication, and testimony that receiving false information becomes a serious problem. This is, of course, very late in the game, evolutionarily speaking. To put it crudely, we think chickens have cognitive states, but we don't

think chickens have cultures rife with misleading communication. In order to successfully lie to another creature, one must represent the other's mental states and then intend to have the other misrepresent some information. The ability to be deceitful in this way is certainly a late adaptation—currently almost no theorists even think chimpanzees have a full-fledged theory of mind capacity (i.e., the ability to represent false beliefs [Call and Tomasello (2008)]).

The Spinozan hypothesis posits that what was true phylogenetically is also true in processing. Just as the ability to reject information is only a late-stage adaptation, so too we think the ability to reject information only happens at later stages in processing; in particular, only after the information has been accepted. Accepting shares its processing hallmarks with our other older phylogenetic processes, such as our perceptual ones: it is passive, effortless, and automatic. On the contrary, rejecting acts more like late-stage "System 2" processes: it is active, effortful, and controlled [e.g., Evans and Stanovich (2013); Mandelbaum (forthcoming)].

Another advantage of having Spinozan minds concerns the "frame problem" (see Hanks and McDermott 1986, Pylyshyn 1987), a well-known problem in cognitive science. The frame problem arises in many guises. One of its central manifestations asks how the cognitive system figures out what 'frame' of information to search when we are presented with a new proposition to consider. Belief acquisition happens immediately. That being so, how do we instantaneously narrow down our enormous stock of beliefs to just those beliefs relevant to the proposition under consideration? There are important evolutionary pressures against cognition waiting and sifting through all of one's beliefs before acting. That type of slow search is apt to get you eaten.

The Spinozan model diffuses this version of the frame problem. On the Spinozan model the system doesn't need to know which beliefs are relevant, because it doesn't decide whether or not to affirm incoming information on the basis of previous knowledge. Instead, it simply accepts all incoming information as is, and only then reevaluates if necessary. If the Spinozan theory is true, there is no frame problem for belief formation (though no doubt there are other deep versions of the frame problem that persist unsolved).

The Spinozan theory does present problems of its own, however. A major problem generated by the theory concerns our status as rational beings. If we have Spinozan minds, and passively accept propositions without deliberation, then a great many of our beliefs may be acquired without any good evidence, or indeed without being based on any evidence at all.

III. Belief in the modern world

Let's say that S's belief that p is based on evidence if: (i) the belief that p was acquired on the basis of a state with the content that q, (ii) S takes q to provide some epistemic support for p, and (iii) S has the belief that p at least in part because S takes q to provide epistemic support for p. So, for example, one's belief that p may be based on an experience of p, or on the beliefs that r and that if r then p, and so on. What's important to note is that in all of these cases there is an intervening psychological state—an experience, or another belief—that mediates between the person and the acquisition of the belief.

The characterization is meant to be relatively anodyne, and to cover a wide range of how one might analyze the basing relation or what counts as having evidence. Our intention is for the characterization to be untendentious enough to cover a wide range of epistemological analyses of the differing terms of art. This characterization is meant to cover quotidian cases, such as ones where we believe that there are berries on the table because we see the berries there, or because we believe that we left raspberries on the table, that raspberries are berries, and that no one has interacted with the table since we left the raspberries there.

The Spinozan model is incompatible with a large stock of our beliefs being acquired based on evidence, even given this undemanding characterization of what it is to be based on evidence. On the Spinozan model not only are many beliefs acquired without evidence, but there is at least a large class of beliefs which are acquired without any further intervening psychological states. In this case, belief acquisition is wholly arational; beliefs aren't acquired based on good (or, for that matter, poor) siftings of evidence, but rather are acquired in a brute-causal fashion.

After the initial shock of the consequences of the Spinozan model set in, one might think that in fact the consequences aren't all that dire. Maybe we accept all of the information provided to us in the first instance, but we might still just go on to reject that information in the second instance. However, the rejection process is an effortful process that is shut down by cognitive load. How dire the situation is depends in part on how fragile the rejection process is.

We can give some sense to how fragile the rejection process is by considering the nature of cognitive load as operationalized in Gilbert's studies. Cognitive load is a catch-all term, one that covers a variety of phenomena. On the most attention-demanding end of the spectrum are tasks such as counting backwards from 100 in intervals of 7s. However, that demanding level of load is far more heavy duty than the load used in the panoply of pro-Spinozan studies. In Gilbert's work, load often amounts to mere self-regulation. For instance, in one study participants were watching a video of an actress being interviewed [Gilbert (2002)]. During the experiment, words would occasionally arise on the screen. The load manipulation consisted of telling participants to ignore the words, since they were tangential to the experiment. Merely not attending to something in the visual field was enough to induce load. This type of self-regulation—a mere self-regulation of what we attend to—is a mundane feature of everyday life (for a florid example, take a ride on the New York subway).

These worries metastasize once one considers the ease with which we parse text. Many of the Gilbert studies utilized the aforementioned 'crawls' (also known as 'tickers')—rows of text that move slowly across the screen, just as one sees on news channels. (See figure 1 for an example of a crawl). The perceptual processing of linguistic input happens automatically, effortlessly, unconsciously, and in a mostly informationally encapsulated fashion [Fodor (1983)]. That is, language parsing appears to be modular.[10] When we encounter linguistic information we cannot help but parse it. But note that the situations in which we encounter this sort of information, in advertisements and billboards and cable news programs, are also situations which will bring on many attention demanding elements that are not part of the crawl.

For example, in figure 1, the ticker at the bottom of the screen provides information about certain war crimes. At the very same time, the viewer is confronted with a variety of salient words and images above the crawl: the famous arresting image of Howard Dean screaming (with rolling stock prices superimposed over the background); the name of a financial news show called "Bulls & Bears" in Fox News' programming block "The Cost of Freedom," including its programmed time and website; an ambiguous headline reading, "Liberals on Iraq: Bad for America & Stocks?"; a small financial news ticker; and the Fox News logo. All these stimuli are present amid various moving graphics and, presumably, music and other sounds, including whatever the anchors are actually saying at the moment.

The situation is designed both to demand attention and to ensure that one's attention is continuously split among the various images, texts, and sounds. As a viewer, if you wish to attend to the information concerning war crimes presented by the bottom crawl, you have to make some effort to ignore the loud, bright, emotionally charged flurry of co-present stimuli. As mentioned above, the effort exerted in ignoring such distractions is sufficient to induce cognitive load. When we attend to any one of these elements while ignoring the others, as one must, we have effectively placed ourselves in an experimental group in one of Gilbert's studies. Perhaps, if you are a liberal or simply distrust Fox News, you are inclined to reject any information from Fox until you acquire independent verification. But if the evidence previously discussed is correct, then merely attending to some element of the scene (e.g., the crawl) while suppressing attention to the others will induce load and trigger an unconscious passive acceptance of whatever you read, whether or not you consider the source to be credible.

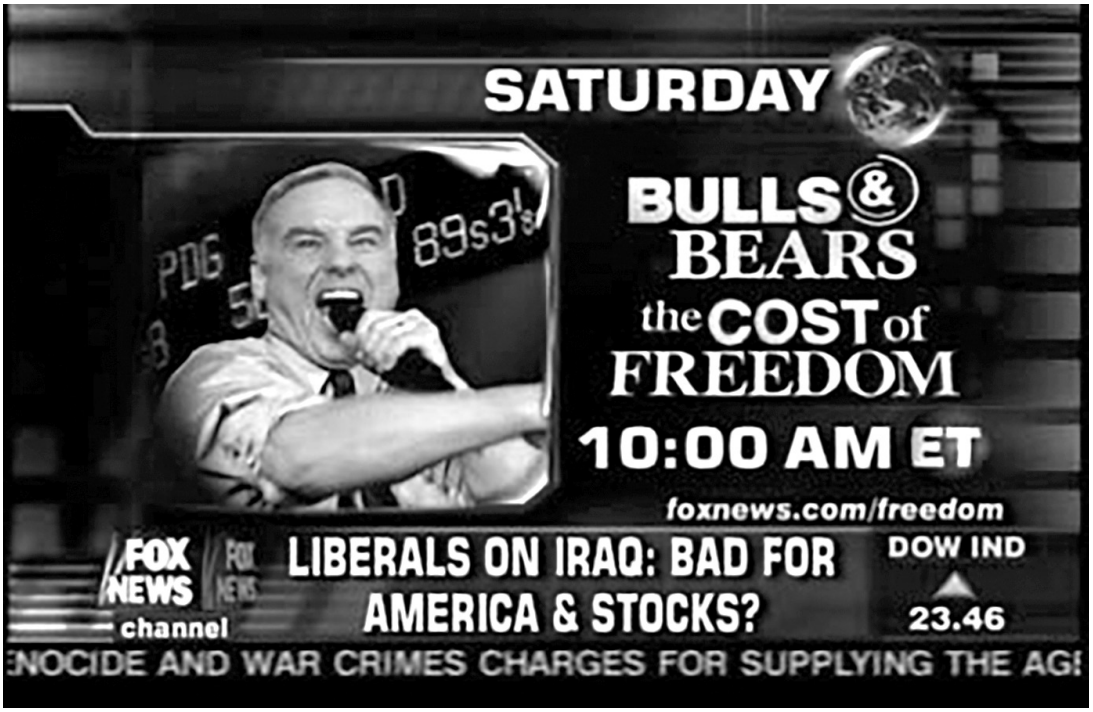

Figure 1: A Fox News crawl appears at the bottom of the screenshot.

One might think that the above example is a bit perverse. After all, one doesn't turn on the nightly news to read the crawl. Instead, when we watch the news we are most apt to look at the center of the screen, where the Dean picture is located in figure 1 (or more typically, where the news anchor's face appears). In this case, we aren't attending at all to the bottom crawl—yet we still process the information it provides. And again, unattended information processed under load is unlikely to be rejected. We might have no conscious inkling at all what sorts of information (or misinformation, as the case may be) we are parsing. Parsing is a reflex. If we are attending to the anchor's face, we simply won't notice that we are reflexively parsing the crawl. And because we don't notice that we're doing it, we have little chance to reject that information. That information is accepted, and once taken up, it is apt to affect other beliefs.

Consider the case of the reluctant liberal Fox News watcher, one who watches not to learn about the news, but instead to examine how Fox packages its news to its core viewership. In Gilbert et al. 1993, as mentioned, the subjects under load did not merely show passive acceptance of the sentences tagged false; they showed significant inferential integration of that information, integration that altered their decisions and other attitudes. This finding implies that the reluctant liberal Fox News viewer, then, will not merely unwillingly accept information (e.g.,) embedded in the crawl, but will integrate that information with other previously held beliefs. And this information—these new beliefs—will not only be acquired in an evidence-less fashion, but they will be acquired from sources the viewer explicitly rejects as trustworthy sources. These beliefs will then be integrated into the subject's future decisions and attitudes, unbeknownst to her and despite her better judgment. If the Spinozan model is correct, this proliferation of belief without evidence is real and serious.

One might reply that the problem may not be so acute, since the conscientious anti-Fox viewer will still be able to overcome this passive acceptance with deliberate, effortful rejection due to recalling the source of the information. One might think that time spent away from disreputable sources will diminish the epistemic impact of these inadvertently acquired beliefs. We are not so optimistic. Take, for instance, "the sleeper effect" (see Kumkale and Albarracín 2004 for a review). In the basic experimental paradigm, subjects are given a sentence with a "discounting cue," e.g., they are told that the sentence comes from a source with no credibility. When tested afterward to see if they believe it, they show low credence in the proposition. But when tested several weeks after or more, their credence is significantly higher. The proposition is a "sleeper," in that it is initially rejected because of the discounting cue, but it remains encoded in long-term memory, and eventually becomes integrated into the subject's beliefs.[11]

Harrowingly, although the credence in the rejected propositions take time to increase, the inferential integration of misinformation happens immediately. For example, in a typical management of misinformation study, subjects will read an unfolding of a particular event, such as a fire as narrated from a police report (the following example is from Johnson and Seifert 1994). Subjects will first be told that the fire was caused by volatile materials (e.g., cans of oil paint) which were contained in a closet. Then, in the next sentence the subjects read, they will encounter a correction, stating that the previous information was in fact false: there

were no flammable materials in the closet. One might think that receiving a piece of information and then immediately receiving news that the information was false would cause subjects to discard, or at least quarantine, the misinformation. However, the oft-replicated finding is more depressing: the misinformation continues to have its causal influence (Johnson 2002). For instance, at the end of the story subjects are asked to conjecture what caused the fire, and they are apt to respond that it was the flammable materials—the materials they were told don't exist—that were the culprit. This effect doesn't arise merely because the subjects aren't paying attention. When these same subjects are also asked about whether the police report contained any corrections, they will state that yes, in fact there was a false report of there being flammable items in a closet. That is, the subjects have contradictory beliefs: they both claim that there were no flammable materials and infer that the fire was caused by flammable materials. The subjects can recover the fact that they have received misinformation yet nevertheless they use the misinformation as a crucial premise in making inferences.

The unfortunate relevance of this effect to the issue at hand is clear. If subjects are automatically parsing and understanding sentences under load all the time—and hence passively accepting and inferentially integrating them—then simply mentally discounting the source will not be enough to safeguard one's beliefs. Perhaps while watching a cable news channel of questionable credibility (at the airport, say) one can tell oneself, "This report is not credible and I should reject it," and thus seemingly stave off the program's epistemic effects. But once parsed and understood, the report already lies "sleeping" in central cognition, stretching its inferential tentacles outward. If what we've argued here is true, then very many of our beliefs are based on no or bad evidence, and indeed based on evidence we *think* is bad—and yet they persist and have a growing impact on our minds.

To drive the point home, consider what should be the paradigm of attentive listening: attending a lecture. When one attends an academic lecture, the condition appears to be a relatively optimal one for belief rejection. One is often enough just in a quiet room listening to a speaker whose talk is the sole focus of the event. Nevertheless, our attention increasingly wanders over time: we may wonder whether the phone is muted, the oven turned off, the shirt stain visible in this light, the pants accidentally unzipped from the bathroom break, whether 'putatively' was just mispronounced, etc. Although this type of self focus is not mandatory, mind-wandering itself is borderline inevitable.[12] And when our minds wander, we disable our ability to reject the information we hear (or see), because our focus is elsewhere.

And our focus is often elsewhere. In everyday life we are forever shifting focus and self-regulating our behavior, while at the same time encountering linguistically encoded information. Thus, we're constantly bombarded with information that we lack the capacity to reject. Given the constraints of our cognitive systems, we are prone to acquire all sorts of beliefs in the same way we catch colds: through mere contact.

We are now in a place where we can explain how people harbor the abundance of odd beliefs we mentioned at the start of the article. Beliefs can be acquired and grow in strength without any evidence at all. One needn't explain

irrational beliefs through any channel of motivated cognition; rather, evolution has wired us to acquire beliefs without examining evidence first. When you combine brute-causal belief acquisition with the constant attentional and behavioral regulation that we engage in, one can end up believing anything.

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Notes

[1] Americans aren't alone in their scientific ignorance. Americans in 2014 (the date of this poll) scored better on the revolution question than Chinese and European Union respondents (though that was based on older data, from 2005). However, both Chinese and European participants scored better on the evolution question with 66 and 70% answering correctly respectively). All the aforementioned statistics come from: National Science Foundation. (2014). *Science and Engineering Indicators 2014*. Web. Nov 29 2014. Chapter 7. URL: http://www.nsf.gov/statistics/seind14/content/chapter-7/chapter-7.pdf

[2] A CBS news poll has the figure at 48% (CBS News. (2005). "Majority believe in ghosts." Web. Nov 29 2014. URL: http://www.cbsnews.com/news/poll-majority-believe-in-ghosts/), while the Huffington Post has it at 45% (HuffPost/YouGov. (2012). Web. Nov 29 2014. URL: http://big.assets.huffingtonpost.com/ghosttoplines.pdf). The Harris poll cited below in fn. 3 has belief in ghosts at 42%. Even more puzzlingly, only 28% of respondents claim to have actually interacted with a ghost (and a similar figure for having 'paranormal experience' was found in Ramsey et al. 2001).

[3] http://www.harrisinteractive.com/NewsRoom/HarrisPolls/tabid/447/ctl/ReadCustom%20Default/mid/1508/

[4] BBC News. May 26 2006. "Britons Report 'Psychic Powers'." Web. Nov 29 2014. http://news.bbc.co.uk/2/hi/uk_news/5017910.stm

[5] All the citations so far in this paragraph come from: Harris. (2013). "Americans' belief in God, miracles, and heaven declines." Web. Nov 29 2014. URL: http://www.harrisinteractive.com/NewsRoom/HarrisPolls/tabid/447/ctl/ReadCustom%20Default/mid/1508/ArticleId/1353/Default.aspx. The Harris poll has belief in the theory of evolution at 47%.

[6] Gallup. (2014). "Biblical Literalism." Web. Nov 29 2014. URL: http://www.gallup.com/file/poll/170837/Biblical_Literalism_140603.pdf.

[7] YouGov. (2012). Web. Nov 29 2014. URL: http://www.dartmouth.edu/~benv/files/poll%20responses%20by%20party%20ID.pdf

[8] Pew Research Center. (2012). "Little voter discomfort with Romney's religion." Web. Nov 29 2014. URL: http://www.pewforum.org/2012/07/26/2012-romney-mormonism-obamas-religion/

[9] 4% of Americans agreed that shape-shifting reptilian people control our society, while 7% reported being unsure about it. Public Policy Polling. (2013). "Democrats and Republicans differ on conspiracy theory beliefs." Web. Nov 29 2014. URL: http://www.publicpolicypolling.com/pdf/2011/PPP_Release_National_ConspiracyTheories_040213.pdf

[10] Even if one would prefer to not think of language parsing as completely modular, it is nonetheless clearly fast, automatic, effortless, and unconscious. See Mandelbaum 2014b for discussion.

[11] For more on the ethical and political ramifications of belief acquisition during distraction, particularly in the cases of cable news, see Levy and Mandelbaum 2014.

[12] For some alarmingly high rates of mind-wandering see Killingsworth and Gilbert 2010. For lecture-specific mind-wandering results see Risko et al. 2012.